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SYNONYMIC AND DESCRIPTIVE NOTES ON THE CHALCIDOID FAMILY MYMARIDÆ.

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There can be no doubt in regard to the family Mymaridæ that more attention will have to be given to minor descriptive details in order that the different species may be recognized; the characters heretofore used, especially that of body coloration, are certainly too indefinite for separation of the species and the cases of a number of the larger genera of the family may be cited to show that this is true. The various species of these genera are barely recognizable at this time; and this is so because the several descriptions are based on coloration alone which happens to be inconsequential in these particular groups. The species of the genera, large in regard to size such as *Polynema* Haliday, bear a number of differentiating characters of specific value in the sculpturing of the body but with the exception of one or two nearly all of them are similar or indistinguishable in regard to general coloration of the body. In other genera the several species are apparently similar both in regard to general coloration and the sculpturing of the body, and in these cases the only characters of specific value are found in the wing ciliation and in the relative size and shape of antennal joints. It is useless, therefore in both of these classes of genera to describe species as we have been in the habit of doing, namely, by describing their color alone for certainly, here, no other than the author of species will ever be able to recognize the species so described, and he himself not without difficulty.

In view of what has been stated, the following descriptive notes are offered as contributory knowledge of the morphology of several of the genera and species and also as an example of the method necessary for separation of the species. The great difficulty in accurately describing some of these minute and delicate forms, the necessity of making descriptions in most cases immediately after the specimens have been collected and the lack of essential knowledge concerning our native species are other reasons for enlarging on the descriptive work already done.

Family **EULOPHIDÆ.**Subfamily **APHELININÆ.**Tribe *Aphelinini.*Genus **Prospaltella** Ashmead.**1. *Prospaltella perspicuipennis*, new species.**

Normal position.

Female.—Length, 0.70 mm. Moderate in size for the genus. Wings hyaline, legs not banded, body black and yellow, fore wings with a naked area under the stigmal vein, with a slight indication of a postmarginal vein and the upper (cephalic) margin of the stigmal vein nearly parallel with and near to the cephalic wing margin, somewhat as in *similis* (Masi) but the space between the wing margin and the cephalic margin of the stigmal vein is very much narrower, a mere incision. Stigmal vein acute, pointing distocephalad.

General color brownish-black: whole of the scutellum, legs and the antennæ uniformly lemon yellow, excepting distal club joint which is darker and the extreme tips of the distal tarsal joints; mesal margin of axillæ, caudal third of parapsides, caudal and lateral margins of mesoscutum, meso-caudal margins of the eyes (less distinctly so), metanotum and mesopost-scutellum sordid or brownish-yellow; tegulæ dusky, venation pallid dusky yellowish. Eyes and ocelli garnet or dark red, the former with whitish pubescence. Both wings hyaline. The lemon yellow scutellum conspicuous against the darker background of the body in life.

Sculpture of body consisting of fine polygonal figures. Ocelli normal, the lateral ones are as far apart from one another as each is distant from their respective eye margin, the three in a short, nearly equilateral triangle, distant from the eyes; ovipositor slightly exerted, yellow.

Fore wings moderately narrow, widest at their distal fifth far distad of the venation, the marginal fringes short, excepting distad along the caudal margin where they are longest abruptly, there equal to a length slightly less than half the greatest wing width. Discal ciliation uniform, not dense, absent proximad of the base of the marginal vein and in a conspicuous rounded naked area caudad and distad of the stigmal vein; across the widest portion of the wing, the discal cilia are arranged in about from 8 to 11 rows; marginal and submarginal vein subequal, the marginal vein much broader, uniform in width and ending abruptly in two short, unequal branches separated by a narrow portion of the wing surface; the cephalic of these is very short, indicating a post-marginal vein; the caudal branch is about three times longer, forming a short wedge-shaped stigmal vein whose caudal margin is flat, short, continuous with that of the marginal vein, whose apical or discal margin is longest, obliquely truncate and whose cephalic margin is similarly inclined but pointing still more distad, curving proximad, cephalad, then slightly distocephalad to form the very slight post-marginal vein. Tegula bearing a single seta from its surface. Posterior wings normal, the blade short, long wedge-

shaped and devoid of discal cilia with the exception of a short row of scattered cilia extending from the extreme base of the blade distad to its caudal margin at about its center,* and a row of somewhat smaller cilia along the cephalic margin of the blade, from the apex of the marginal vein to the apex of the wing; marginal fringes absent along the cephalic margin just distad of the marginal vein, then originating and continuing around the entire blade margin, very short at first, slightly lengthening distad to the apex, then longer at apex and around at the caudal margin abruptly lengthening, becoming longer than the greatest width of the wing (across the apex of the marginal wing); they continue of nearly equal length along the caudal margin.

Antennæ regularly clavate, uniformly clothed with short, soft pubescence, 8-jointed-scape, pedicel, three funicle joints and a 3-jointed club, the latter distinct. Scape slender, nearly as long as the club, longer than the funicle, the scape, club and flagellum (including pedicel) being subequal regions; pedicel obconic, short, but longer than the first funicle joint, but not very much longer; flagellum gradually increasing in width, the joints of the funicle and club gradually increasing in length; proximal joint subquadrate, a fourth shorter than the following joint and nearly a third shorter than the pedicel, barely longer than wide; second funicle joint longer and slightly wider than the first but a third shorter and a fourth narrower than the third funicle joint, more equal to the pedicel than any other antennal joint; third joint of the funicle but very slightly shorter than the proximal club joint, but distinctly narrower, longer than the pedicel; second and third funicle joints distinctly longer than wide; all club joints distinctly longer than wide, the proximal two subequal in length, slightly longer than the third or distal funicle joint, the intermediate joint, however, broader than the first club joint, nearly rectangular and the broadest antennal joint; distal club joint conical, slightly longer, the longest flagellar joint, as wide at its base as the apex of the intermediate club joint; its apex obtuse but pointed, not sharply or acutely so.

From two specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Male.—Unknown.

The species has the fore wings of *Encarsia* but the antennal club is plainly 3-segmented.

Described from two female specimens (the colors and sculpture from life) captured on the panes of a window in an unused pigshed on a farm, August 27 and 31, 1909. The host is therefore unknown. A species characterized by the shape of the stigmal vein, the naked area in the discal ciliation of the fore wings caudad of the stigmal vein, the bright yellow scutellum, the indication of a post-marginal vein, the hyaline wings and the uniformly yellow, non-banded legs. It is nearest to *similis* (Masi) from which it is easily

* A few scattered very minute setæ caudad of this row, between it and the caudal wing margin.

separated by the structural differences in the stigmal vein. In Howard's (1908) table of the species of the genus, it would drop in near *similis* (Masi) or *koebbelei* Howard, differing from the latter in its black head, more clavate antennæ, naked area of the fore wings and details of antennal structures, as well as in the perfectly hyaline wings and the contrasting coloration of the scutellum with that of the rest of the mesonotum. An apparent typographical error is present in the first line of the table referred to (Howard, 1908, p. 281), namely, the words "pointed marginal vein" being printed instead of "pointed postmarginal vein." The error, however, is readily detected because of the fact that the marginal vein in the whole subfamily is usually very long and in the genus *Prospaltella* is as long as is normal.

Habitat.—Centralia, Illinois.

Type.—Accession No. 41,679, Illinois State Laboratory of Natural History, Urbana, Illinois, two females in xylol-balsam (two slides).

Family **MYMARIDÆ**.

Subfamily **GONATOCERINÆ**.

Tribe *Ooctomini*.

Genus **Camptoptera** Foerster.

1. **Camptoptera pulla** Girault.

Girault, 1909a, pp. 27-28, fig. 2.

This species recently described from several female specimens captured at Urbana, Ill., in July, 1908, proved to be common at Centralia, Ill., during the latter part of August and the first part of September, 1909, both sexes being captured, the female in numbers. The color of its body is really shining black in nature, appearing greyish black in balsam mounts. Otherwise its description is correct as given, excepting that the club joint is not narrowed as shown in the figure (Girault, 1909a, fig. 2) and with the exception of the shape of the abdomen which is ovate in lateral aspect in balsam mounts but in the dorsal aspect as has been described. The dilatation on the caudal margin of the fore wings near base is a regular sloping convexity, not acute or emarginate at any place on its margin; the coxæ are concolorous with the clay yellow legs; the eyes are reniform, very dark garnet, their surface coarse; abdomen smooth

and shining with sparse, soft, whitish pubescence dorsad and caudad; the thoracic pleura are finely lined, obliquely so; the head, thoracic venter and most of the remaining portions of the thorax similarly lined, the vertex transversely so, the scutellum impunctate, longitudinally finely lined (the metanotum has not as yet been seen); the mesoscutum, however, is somewhat rougher, with fine polygonal figures; surface of the eyes much coarser than the body surfaces. The parapsidal furrows are complete, widely separated at their bases, the caudal margin of the mesoscutum straight, that sclerite shorter than the scutellum which is large and slightly convex; for a few other general characters see the description of the male following. The pubescence of the funicle and club in the female antennae is obscure but the funicle joints have at least one whorl of fine hairs distad, more noticeable on joints 4 to 6 but there is also some pubescence farther proximad on the joints; the club bears a few long grooves.

The male, heretofore unknown, is described herewith.

Male.—Length, 0.75 mm.; slightly smaller than the female but otherwise the same excepting in antennal and abdominal characters or the secondary sexual characters usual to the genus.

Occipital margin of the vertex (dorsal aspect) concave, subacutely emarginate at the meson, its two oblique sides meeting there in a point; ocelli dark like the eyes, smooth, inconspicuous, situated in a mere curved line near the occipital margin, the lateral ocelli somewhat farther from the middle or cephalic ocellus than each is distant from their respective eye margin; also the distance between the lateral ocelli is at least thrice the distance between each and its respective eye margin; lateral ocelli slightly farther from the eye margins than they are wide and separated from them by a grooved line, a portion of the "vertexal carina" seen in balsam mounts.

Abdomen distinctly shorter than the thorax, (lateral aspect) triangular,* the dorsal plane acutely convex, very convex; (dorsal aspect) triangular, its base truncate, forming the base of the triangle, the second and third segments subequal, at least a third longer than segments 4 to 7 which are short, transverse, straight; terminal segment slightly longer, very small, conical. Antennae inserted dorsad of the middle of the face, slightly ventrad of a line drawn between the dorsal ends of the eyes (lateral aspect), widely separated, the bulbs being near the eye margins.

Antennae filiform, much longer than in the female and than the length of

* In balsam mounts quite differently shaped: ovate, very small, not any larger than the head and with the genitalia exerted. In balsam mounts the abdomen of the male resembles somewhat the female abdomen, lateral aspect, when similarly mounted.

the body, the funicle joints all cylindrical and long, none of them very unequal. Scape short, its ventral margin convex, its dorsal margin straight, subequal in length to the club joint, slightly longer than the first funicle joint; pedicel obconic, short and moderately stout, its truncate apex with serrulate margins, nearly as wide as the scape, the scape and the pedicel being the widest antennal joints, being about twice wider than the width of the flagellum; pedicel the shortest antennal joint, slightly more than half the length of the proximal funicle joint but longer than wide; the following joints all slender, much longer than wide; proximal funicle joint the shortest joint of the funicle, slightly shorter than the club joint, nearly twice the length of the pedicel, a third shorter than the next joint; following funicle joints all subequal in length, the second and third funicle joints tending to be equal and longest, the fourth slightly shorter and the fifth, sixth and seventh equal and still slightly shorter and the club joint equal to them or slightly shorter; it is at least as long as four times its own width and but very slightly conical distad, not differing very much from the preceding joint. Funicle and club with a few longitudinal grooves (high power), the corners of the distal ends of the funicle joints ending in acute spine-like processes. Pubescence fine and close, short, increasing distad but not dense.

Caudal wings and the fore wings with the usual row of discal cilia around their margins, originating between the insertions of the marginal fringes. Anterior tibial spur forked.

From four specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

The foregoing descriptive notes were made from a series of eighteen specimens captured at Centralia, Ill., on the panes of a small window in an unused pig-shed on a farm; all were captured at the same spot on these dates, 1909: August 25 (4 ♀'s), 26 (2 ♂'s, 3 ♀'s), 27 (1 ♀), 30 (1 ♀); September 1 (1 ♀), 2 (2 ♀'s) 4 (1 ♂) and 6 (1 ♂, 2 ♀'s).

I have since captured the following specimens: One female by sweeping, Urbana, Ill., July 1, 1910, and in the same locality on greenhouse windows also on the same date, one male and six females; some of these females were twice the size of the others and while the former were easily seen with the unaided eye, the latter were barely visible.

2. *Camptoptera metotarsa* Girault.

As shown later this species becomes the type of the new genus *Macrocamptoptera* Girault.

The genus *Camptoptera* has now three valid species—*papaveris* Foerster, *clavata* Provancher and *pulla* Girault. Of these the second is unrecognizable, its description too general.

Macrocamptoptera, new genus.

Type.—*Camptoptera metotarsa* Girault.

A genus similar to *Camptoptera* Foerster but larger and distinguished by the longer, slender scape, the lack of parapsidal furrows, the somewhat less noticeable abdominal petiole and the coarser body sculpturing. The type species is reconsidered herewith.

1. *Macrocamptoptera metotarsa* (Girault).

Camptoptera metotarsa Girault, 1905a, p. 91.

Camptoptera metotarsa Girault, 1909a, pp. 26-27.

An examination of the single type specimen of this species brings out the fact that it belongs to this new genus and that its original and revised descriptions are correct in all essential points. But in the table of species of the genus *Camptoptera* given in Girault (1909a, p. 28) in line 9 *joint 4 of funicle* is printed instead of *joint 4 of antenna*; the second funicle joint was intended. Also the species is more than 1.25 mm. in length, distinctly larger than the two known species of *Camptoptera*. The type is in bad condition, the abdomen broken from the rest of the body but the parts are in excellent condition for study, excepting that the antennal club is missing; the specimen is tag-mounted but the body is not shriveled. However, an antenna was successfully removed and mounted in balsam and also the wings and a fore leg and this mount plainly showed the previous descriptive notes to have been correct. From this mount and the other parts on the tag I have made the following notes which should be considered final. The unique type specimen is in the United States National Museum, Washington, D. C., mounted on a tag bearing the following labels: "Arlington, Va. VI, 28, 1905"; "A. A. Girault, collector."; "Quaintance No. 361."; "Type No. 8941."; "*Camptoptera metotarsa* Girault, ♀." Also a portion mounted in balsam on a single slide labelled "Hym. slide No. 112," U. S. National Museum, bearing a pair of wings, a fore leg and an antenna.

Abdomen with a short petiole. Body with distinct scaly sculpture. Parapsidal furrows absent; a rather deep ovate fovea on each side of the mesoscutum near the caudal margin at about where, or somewhat more laterad, the parapsidal furrows ordinarily are. Fore wing shaped as in *Camptoptera*; the marginal vein straight, moderately long, at least three times longer than wide; a paired, distinct row of discal cilia along the cephalic margin and a similar line along the caudal margin, both at the wing edge or near the insertions of the marginal fringes; the lines along the caudal margin are relatively

farther apart from each other, but the lines along both margins disappear just before the apex, that is, do not continue around the apical margin to meet each other. The apex of the fore wing is curved in one direction only, the caudal margin remaining straight to the point of the apex, the cephalic margin curving around to meet it, the curve oblique. In the fore wing as formerly described, there are two principal lines of discal cilia extending from the apex which are broken just proximad of the distal half of the wing blade, a naked space intervening, then continued proximad in short, straight lines of about five cilia each, ending some distance from the marginal vein. Also, in the fore wing, two other lines of discal cilia, making 4 in all, these two shorter and within the others, confused with them toward the apex and extending proximad not to the base of the distal half of the wing. Blade of the fore wing bordered with dusky yellowish. Dilatation proximad on the caudal margin of the fore wing a mere inconspicuous convexity; as in *Camptoptera* the marginal fringes have a distinct or white path around the wing margin just out from their insertions. Posterior wing linear, slightly enlarging distad, maculate with dusky, the caudal edge with a paired line of discal cilia; cephalic line with a single line of them. Tarsi 5-jointed. Antennæ with a long and slender scape, as long as the pedicel and first two funicle joints united; the first and second funicle joints slender, the latter longest, the pedicel not a half of its length and a third longer than the first funicle joint; third funicle joint and others distad gradually shortening, the third only half as long as the second funicle joint.

Tribe *Gonatocerini*.

Genus *Alaptus* Haliday.

1. *Alaptus iceryæ* Riley.

Girault, 1908a, pp. 186-187.

Normal position.

Female.—Length, 0.23 mm.; very minute; in life barely visible to the naked eye. Similar in general to the other species and as formerly described except as may be hereinafter mentioned.

General color uniformly grayish black, the thorax somewhat lighter: Antennæ concolorous, legs uniformly pallid, including the coxæ, the apical tarsal joint dusky only at its extreme tip; eyes and ocelli dark reddish; fore wings clear with a dusky yellowish border around the blade, the posterior wings as usual maculate with dusky. Venation pallid, very slightly dusky.

Body smooth, shining, impunctate, the pubescence sparse; parapsidal furrows complete; scutellum transverse. Abdomen ovate, sessile, about equal to the thorax in length, the ovipositor not exerted. Legs normal, the tibial spurs single, the anterior spurs large, curved and forked and the proximal tarsal joint of the anterior legs with the usual row of stiff bristles forming the antennal comb or strigil in conjunction with the curved and forked tibial spur; tarsal joints 3 and 4 subequal, the proximal two somewhat longer and subequal to each other and the fifth or distal joint somewhat the longest.

Fore wings normal to the genus, with a slight curve along the caudal margin at the distal fifth, widest slightly before (proximad of) the apex and across the proximal dilatation and tapering rapidly proximad from the apex until reaching the dilatation or excision on the caudal margin which is usual and which originating at a point opposite the apex of the marginal vein curves concavely to an acute point opposite the distal third of the marginal vein and then gradually descends by means of a longer inclination proximo-cephalad, reaching the original line of the caudal wing margin somewhat proximad of the origin of the marginal vein; the much longer declining side of the dilatation is entire with the exception of a slight emargination at its proximal fourth at about a point opposite to the origin of the marginal vein; the dilatation is keel-shaped and the wing is wider across it than at the apical wide portion of the blade. Just opposite the apex of the dilatation, along the cephalic margin of the wing at the distal third of the marginal vein there is a slight convexity. Blade of fore wing with the usual marginal cilia which are longest at the apex, especially caudad where they exceed the greatest width of the blade by at least three times; as usual these cilia are pallid at a point a short distance out from their origin, forming a clear path or border around the apex of the wing; discal cilia entirely absent with the exception of the usual row of them around the margins at the insertions or bases of the marginal cilia and in the center of the blade at its distal half one or two cilia, if the latter then both equal in size, not very widely separated and in the same line longitudinally; marginal cilia continuous to the apex of the marginal vein (cephalic margin) and (caudal margin) to the apex of the dilatation where they are comparatively very short; toward the proximal end of the blade of the fore wing a few cilia from the row of discal cilia on the margin may appear in the center of the blade. A single large seta arises from the marginal vein at the slight convexity and a small one more proximad at its proximal third; submarginal vein serrulate along its caudal edge for at least the distance of its distal half, narrow, much longer than the marginal vein which is about $4\frac{1}{2}$ times longer than broad.

Caudal wings normal, straight, clavate, its entire blade maculate as usual with dusky and the pallid or white bases of the marginal cilia at the apex of the wing form a whitish or clear border around that portion of it, the marginal cilia complete, longest at the extreme apex and caudad where they are at least 4 times longer than the greatest width of the wing, but not as long there as the longest marginal cilia of the fore wing, being about a fourth shorter; wing widest somewhat farther from the apex than in the case of the blade of the fore wing; discal cilia absent, save for a single longitudinal row of about 14 which proceeds from the base of the blade to the base of the distal seventh of the blade along the middle of it, nearer the caudal margin, terminating before the apex where the blade is widest and with its setæ smaller and closer together proximad than distad. Posterior wings as usual smaller, narrower and straighter than the fore wings.

Antennæ similar to those in *Alaptus cecillii* Girault but the proximal two

funicle joints are shorter, the first quadrate, the second barely longer than wide, whereas in *cæciliæ* they are distinctly longer than wide. Scape as in *eriococci*, shorter than the club, slightly longer than the united lengths of the three following joints, widest at its center but not especially widened; pedicel obconic, truncate apically, its apical margin serrulate, as wide as the scape but its apex at least a third narrower than the widest portion of the club, somewhat longer than the united lengths of the two following joints; proximal funicle joint abruptly smaller, quadrate, very slightly shorter than the next joint and the shortest antennal joint; funicle joint 2 slightly longer than wide, from a third to a fourth shorter than the following joint or funicle joint 3, equal in width to funicle joint 1 and somewhat narrower than funicle joint 3 which is cylindrical ovate and equal in length to the following joints or slightly longer; funicle joint 4 rounded ovate, wider than joint 3 and the distal funicle joint still larger and globular, about thrice the size of the proximal funicle joint; club large, ovate, as long, or nearly, as the 4 joints preceding; the club is much larger than the scape and the broadest of the antennal joints; it bears the usual two longitudinal carinæ. Pubescence of the funicle joints arranged as in *globosicornis* Girault.

From three specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Male.—The same. Length, 0.21 mm.

Antennæ filiform, 10-jointed, very similar to those of the type specimens but the second funicle joint is somewhat shorter; differing from the males *immaturus* Perkins, *excisus* Westwood, *minimus* Walker, *eriococci* Girault and *cæciliæ* Girault in having the second funicle joint the shortest joint of the antennæ.

Scape and pedicel the same, the latter slightly longer than the united lengths of the first two funicle joints; proximal funicle joint rectangular, longer than wide, a third longer than funicle 2 and a third shorter than funicle 3; the second funicle joint as wide as long, quadrate, a half the length of the following joint, the shortest antennal joint; funicle joint 3 cylindrical, distinctly longer than either of the preceding two joints but a third or fourth shorter than joints 4, 5 and 6 which are equal; joint 7 slightly longer than 4, 5 or 6 and the terminal or club joint conical and subequal to 4, 5 or 6; funicle widening very slightly beyond joint 3. Pubescence arranged as follows: Scattered on the scape; a single row encircling the pedicel and each of the first three funicle joints and two rows on funicle joints 4 to 7, at their proximal and apical thirds respectively; the club joint has at least 3 rows. Distal angles of funicle joints 3 to 7 acute. The proximal row of setæ on funicle joint 4 sometimes absent. Genitalia pallid, exerted in death. Mandibles acute. A conspicuous seta from a piliferous spot arises from the lateral aspect of the intermediate tibia at its proximal third.

From 6 specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Redescribed from 6 males and 3 females captured from the panes of a window August 25 (1 ♂), 27 (1 ♂), 29 (1 ♂) and September 1 (2 ♂'s, 2 ♀'s) and 5 (1 ♂, 1 ♀), 1909 in an old pig-shed on a farm at Centralia, Ill.

In the table of species given in a recent paper on this genus (Girault, 1908a) these specimens run to *iceryæ* Riley and are typical specimens of that species, only they differ from the type specimens of the species in having an additional discal cilium in the fore wings and in being somewhat different in size, smaller, and in general coloration. The characteristic shortening of the second funicle joint in the male readily differentiates this species from all others of which the male is known. There is great difficulty in accurately determining the character of the body sculpture and other obscure body markings in these minute and very delicate mymarids but it is not of extreme difficultness to select differentiating characters in species whose habiti have already indicated their distinctness. In spite of the seeming difficulties reasonable care and discrimination will not fail in recognizing those species already described if the descriptions include such characters as wing ciliation and antennal structure. As far as I know sculpture of the body varies but little with the species of this genus.

Habitat.—Centralia, Ill., and see Girault (1908a). I have since captured two female specimens on the glass side of a greenhouse on the campus of the University of Illinois, Urbana, Ill., April 30, 1910.

2. *Alaptus cæcilii* Girault.

Girault, 1908a, pp. 189-191, fig. 3.

In the original description of this species (p. 190, paragraph 1, line 2) it is stated that the second funicle joint of the antenna is nearly a third *larger* than the third funicle joint; length was intended rather than general dimension, for the second joint is a third *longer* than the third joint but not as broad.

I have an additional female specimen of this species captured at Centralia, Ill., September 1, 1909, on a window. Its distribution in the United States must be wide.

3. "*Alaptus pallipes* Ashmead."

An examination made of the type of this species through the kindness of the authorities of the U. S. National Museum, formerly inaccessible, shows that the tarsi are 4-jointed and the fore wings densely ciliated; the shape of the wings and antennæ further preclude its position here. It was described as a species of *Alaptus* by Ashmead in 1887 (Ashmead, 1887; Girault, 1908a). I shall not attempt to place it at present other than without this genus and

within the Mymaridæ; it has Anaphine affinities. The type of the species is a single tag-mounted specimen and is necessarily in bad condition for adequate study. It is simply labelled "*Alaptus pallipes* Ashm. Type. Jacksonville, Florida," and has no number in connection with it.

The genus *Alaptus* now contains the following species which are both valid and recognizable: *minimus* Walker; *iceryæ* Riley; *immaturus* Perkins; *globosicornis* Girault; *cæcili* Girault; *eriococci* Girault and the new species—*intonsipennis*—described beyond. The species *immaturus* Perkins needs fuller description. The species *fuscus* Walker, *pallidicornis* Foerster, *fuscus* Foerster and *excisus* Westwood, in short all of the European species with the exception of the type of the genus, are certainly unrecognizable at present and perhaps for all time, and I have already indicated this. Finally, they may have to be dropped from our lists.

In my catalogue of this genus (Girault, 1908 a) these omissions occurred: In regard to the species *minimus* Walker, I omitted to give Enock's (1897) rearing of what he supposed was a male from the eggs of *Stenopsocus cruciatus* (Linnæus) and also his statement that this same host contained the larvæ of the species *fuscus* Walker. Concerning the latter I should think there would be even more doubt as to its identity than implied in connection with *minimus* and that the statements concerning both species should be taken for no more than their worth. In the list of literature de Dalla Torre was inadvertently omitted and no reference was made to Isaac (1907) under the species *excisus* Westwood.

These remarks, together with the following description of a new species from the United States complete all that is now known concerning this genus. The full descriptive notes given on the species *iceryæ* Riley should aid materially in advancing our knowledge of the generic characters and moreover to impress upon us the fact that specific differences in this genus are what are ordinarily held to be minor characters such as ciliation of the wings, wing shape and antennal structures.

4. *Alaptus intonsipennis*, new species.

Normal position.

Female.—Length, 0.50 mm.

Exactly similar in the general shape of the body, wings and antennæ to

minimus Walker but black and with the discal ciliation of the fore wing placed somewhat farther caudad from the cephalic wing margin; otherwise I am unable to distinguish the two species structurally or otherwise with the exception of another minor character mentioned later in this description.

Fore wings in all details as in *minimus* Walker, the slight proximal fuscation present and besides the usual row of discal cilia on both of the wing margins between the bases of the marginal fringes, two other longitudinal rows of discal cilia near the cephalic wing margin, the first close to the margin and somewhat confusable with the cilia at the margin but the second is shorter and is distinctly separated from the margin being between it and the midlongitudinal line of the wing and extending from slightly cephalo-caudad of the apex proximad to a distance slightly beyond the base of the distal half of the wing; the first line is somewhat longer, extending nearly to the excision or acute dilatation of the wing; in *minimus* the second line of cilia may be quite close up to the wing margin, therefore more or less confusable with the other and thus leaving the wing disk quite free of cilia. Posterior wings dilated somewhat distad or subclavate and exactly similar to those of *minimus*. The marginal ciliation of both wings exactly similar as in that species as is also the extent and shape of the acute dilatation of the caudal margin of the fore wing near its base. However in *intonsipennis*, high power ($\frac{3}{8}$ -inch objective, Bausch and Lomb) reveals in the fore wing a short line of 3 minute discal cilia just off of the caudal margin and just back from the wing apex; these are not visible by low power and I have been unable to find them in *minimus*; they do not of course possess much specific value unless they should prove to be constant.

The antennæ are similar to those of *minimus* both in regard to relative size and shape of the joints and in pubescence. I have not been able to compare thoracic and abdominal characters; the ovipositor is slightly exerted in both species.

From 3 specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Male.—Unknown.

Described from two female specimens mounted in balsam and captured together on a window-pane in a waiting-room of a railway station at Hendrix (Bloomington), Ill., July 22, 1910.

Habitat.—United States—Bloomington, Illinois.

Type.—Accession No. 44,115, Illinois State Laboratory of Natural History, Urbana, Ill., two females in xylol-balsam, one slide.

Although this species is so similar to *minimus* it is not possible to call it that species until we are assured that it may vary in color from brownish yellow to deep black; such variation is not known to occur in this genus up to this time.

Genus Gonatocerus Nees.

It is indicated that the present conception of this genus is wrong and that careful revision of it will show at least one other genus represented by its comparatively numerous species. Care should therefore be used in describing new forms of it and in identification work until a revision is made.

Subfamily MYMARINÆ.**Tribe Anaphini.****Genus Anaphoidea Girault.**

Type.—*Anaphoidea sordidata* Girault.

This genus was founded upon a moderately large mymarid reared from the eggs of a common weevil, *Tyloderma foveolatum* (Say) which breeds in enormous numbers in the stems of evening primrose. It is fully described by Girault (1909*b*). Since its discovery, two other closely allied species belonging to it have been found. One of these is a common parasite of the eggs of another curculionid, having a similar habit of depositing its eggs into soft vegetable tissues, namely, *Conotrachelus nenuphar* Herbst and the parasite was described as *Anaphes conotracheli* Girault (1905*b*). The other species is unknown to science and is described beyond; it was captured at large in the same locality as was the type species and nothing is known concerning its host. As all of these species are very similar in coloration and general structure, and separated with difficulty at first, and as the species *conotracheli* is very inadequately and erroneously described, the following diagnostic table and descriptive notes are added. The genus appears to be parasitic on the eggs of various Curculionidæ and is widely distributed in the United States, the species *conotracheli* being known to exist from Connecticut south to Georgia and west to Texas.

DIAGNOSTIC TABLE OF THE SPECIES OF *Anaphoidea* GIRAULT.*Females.*

Species black and similar in general coloration; fore and hind wings slightly fumated.

- I. Legs distinctly yellow in color, marked with dusky or clouded, two distinct shades of color present. Fore wings broader, with from 12 to 15 longitudinal rows of discal cilia at their broadest blade portion.

1. Second funicle joint of antennæ long, distinctly longer, but not very much more so, than the third funicle joint and the longest funicle joint, distinctly 4 times the length of the proximal funicle joint; funicle joints long, columnar, increasing very gradually in width distad. Posterior wings with a single central row of discal cilia* which consists of from 7 to 15 cilia along the distal half of the wing. Fumation of wings distinct. Second funicle joint distinctly longer than joint 6 of the funicle and but slightly more slender. Large. *sordidata* Girault.
 2. Second funicle joint of antennæ but moderately long, distinctly shorter, but not very much more so, than the third funicle joint or equal to it but slenderer, the third joint very slightly the longest and widest funicle joint but distinctly wider than funicle joint 2; second funicle joint but 3 times the length of the proximal funicle joint. Second funicle joint subequal in length to funicle joint 6, but much more slender. Moderate in size. Funicle joints shorter, cylindrical ovate, increasing noticeably in width at the third joint, thence gradually distad. Posterior wings with no central line of discal cilia, sometimes with 1 or 2 cilia at apex, at the most with a line of 4 cilia at the apex. Fumation of wings lightest. *conotracheli* Girault.
- II. Legs nearly uniformly neutral or dusky or ashy greyish in color, the shading of colors not distinct. Wings narrower, with but from 6 to 9 longitudinal rows of discal cilia at their widest blade portion.
1. Second funicle joint of antennæ but moderately long, distinctly shorter, but not very much more so, than the third funicle joint or equal to it but slenderer, the third funicle joint very slightly the longest and widest funicle joint; second funicle joint but 3 times the length of the proximal funicle joint. Funicle joints shorter, cylindrical ovate, noticeably increasing in width at the third joint, then gradually distad. Posterior wings with a very short central line of discal cilia at the apex, consisting of from 2 to 4 cilia, widely separated. Fumation of wings distinct. Second funicle joint subequal in length to funicle joint 6, but much more slender and somewhat shorter, moderate in size. *pullicrura* new species.

The male *sordidata* may be separated from the male of *conotracheli* by means of antennal characters, the funicle joints of *sordidata* being relatively longer, about 3 times longer than wide, cylindrical to

* The posterior wings in this genus have a row of discal cilia along the cephalic wing margin and a similar paired or double row along the caudal wing margin, all of them arising from between the bases of the marginal cilia or nearly. The row referred to in the table is in the central longitudinal line of the wing blade, at or distad of the apical half.

columnar, whereas in *conotracheli* they are but about two times longer than wide and more near cylindrical ovate than cylindrical. The posterior wing ciliation also differs in the males of the two species as brought out in the table for the females.

1. *Anaphoidea sordidata* Girault.

Girault, 1909b, pp. 169-171.

Since describing this species I have reared it from the eggs of *Tyloderma foveolatum* (Say) in the stems of *Ænothera* as originally the hosts obtained at Butler, Ill., July 16, 1910. The following specimens: 2 ♂'s, July 17; 5 ♂'s, 2 ♀'s, July 26, 1910. Also it has been captured at Urbana, Ill., two male specimens, May 16 and 25, 1910, in sweepings and in a greenhouse.

2. *Anaphoidea conotracheli* (Girault).

Anaphes conotracheli Girault, 1905b, p. 220.

Johnson and Girault, 1906, pp. 5-6.

Quaintance, 1906, p. 327.

Brooks, 1910, p. 110.

Anaphoidea conotracheli Girault, 1909, p. 171.

This species was too briefly and somewhat erroneously described from a very large number bred from the eggs of the plum curculio, *Conotrachelus nenuphar* Herbst. It is very similar to the other species of this genus, *sordidata* and *pullicrura* yet is distinctly different and can be separated from them by a close study of the table given before. It is the same in general coloration as the former species nearly and indistinguishable from it until a close comparison is made of wing and antennal structures; it is more easily distinguished from *pullicrura* as the legs are differently colored, the fore wings are distinctly broader and the antennæ and posterior wings are somewhat different, the first two characteristics however being especially noticeable; its antennæ are very similar to those of *pullicrura*. In its original description, which is inadequate for its proper recognition and which is somewhat erroneous, the following leading corrections are made: The mandibles are tridentate *not* bidentate; the antennæ in the female are 10-jointed *not* 9-jointed, the club being divided, a character heretofore not well recognized in the Mymaridæ; the wings are slightly fumated. The following descriptive details are added: In the female the antennæ differ mostly from those of the female of the type species in the relative length of the second funicle joint

which is slightly shorter than the third funicle joint and more slender than it, the third funicle joint being slightly the longest funicle joint; also in this species all of the funicle joints are shorter and stouter than those in *sordidata* and the funicle is distinctly broader after the second joint; funicle joints 3 to 6 subequal in length and width, the third joint slightly the longest and all four slightly longer and distinctly wider than the second funicle joint; excepting the first, all

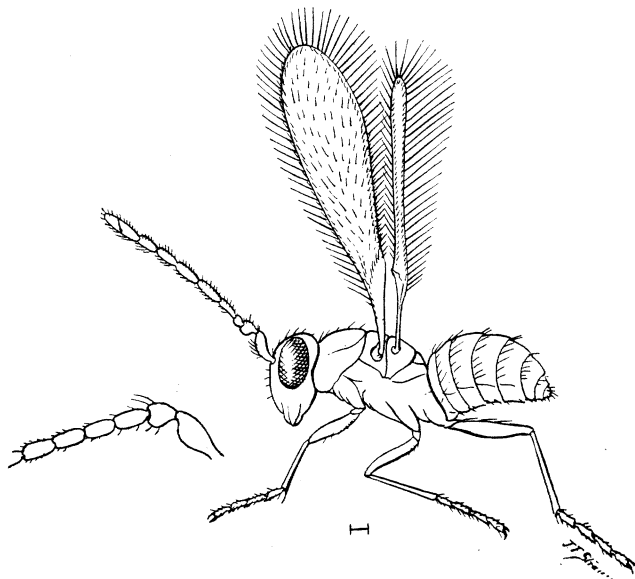


FIG. 1. *Anaphoidea conotracheli* Girault.*

funicle joints at least thrice longer than wide, the second funicle joint slender; the fore wings in the female are similar to those in the type species excepting minor differences impossible to describe; the posterior wings differ from those of the type species as brought out in the table of species but in both *conotracheli* and *sordidata* there are a few minute discal cilia just caudad of the marginal vein. The

* Enlarged outline drawing showing the general habitus of the species and genus. The structural details are not correct and the figure should not be used to replace descriptive matter or for purpose of specific identification. Thoracic, feda and wing details are the ones lacking in accuracy but the general habitus is excellent and the antennæ are correct in regard to the relative size and shape of the joints.

parapsidal furrows are complete, widely separated. Both the discal and the marginal ciliation of the fore wing is shorter in this species than in *sordidata*, especially noticeable along the cephalic wing margin; in *pullicrura* they are still somewhat longer than in the last-named species. Another point of difference between *pullicrura* itself and *conotracheli* and the type species taken together is that in the former the longest marginal cilia of the fore wing are about equal in length to the greatest wing width but in the latter two species distinctly shorter than the wing is wide.

The males differ from the males of the type species in antennal structures, having shorter flagellar joints as brought out in the table. Otherwise there are no very noticeable differences.

Redescribed from the following specimens: (1) Cotypical specimens, 4 ♂'s, 2 ♀'s on a single slide in balsam labelled "From eggs of *Conotrachelus nenuphar* Herbst, Fort Valley, Ga., May 10, 1905. A. L. Quaintance." And reared at Washington, D. C., from hosts transported through the mails. (2) Metatypical specimens, 4 ♂'s, 10 ♀'s on a single balsam slide labelled "Quaintance No. 883. *Anaphes conotracheli* Girault. From the eggs of *Conotrachelus nenuphar*. From hosts in plums received from W. E. Britton, Berlin, Conn., July 10, 1905." Reared at Washington, D. C. And (3) metatypical specimens, 5 ♂'s, 11 ♀'s, labelled "Quaintance No. 902. From eggs of *C. nenuphar*. From hosts in plums received from W. E. Britton, Berlin, Conn., July 12, 1905." Also reared at Washington. These specimens, excepting the first series, were kindly loaned to me by Prof. A. L. Quaintance, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C., through the courtesy of Dr. L. O. Howard, Chief of Bureau, and all of them were reared during 1905 from the eggs of the host mentioned transported to Washington from various points in the United States. With the exception of the types and cotypes, all of these specimens are in the collections of the Bureau of Entomology, Division of Deciduous Fruit Insect Investigations.*

* I have since examined all of the material in the family Mymaridæ in the collections of the U. S. National Museum and find included therein 4 male and 2 female metatypical specimens of this species, tag-mounted and each labelled "Quaintance No. 270. On *Conotrachelus nenuphar*, Arundel, Maryland, V, 19, 1905. A. A. Girault, Collector." The collections of the National Museum therefore contain the 4 type specimens and these metatypes.

Types.—Type No. 8433, United States National Museum, Washington, D. C. Two ♂'s, 2 ♀'s, tagmounted. (Arundel, Maryland, May 20, 1910). *Cotypes*.—Accession No. 44,104, Illinois State Laboratory of Natural History, Urbana, Ill., the slide of 4 ♂'s, 2 ♀'s mentioned in foregoing (Fort, Valley, Georgia). Since writing the above, I have also reexamined the types in the National Museum collection.

Through the kindness of Professor Quaintance I am able to give herewith the following list of localities from which this parasite has been received and reared at Washington by the agents of the National Bureau of Entomology in connection with its only known host, during the investigations of deciduous fruit insects. The parasite was first discovered from Fort Valley, Ga., early in the spring of 1905 and the list is interesting from the fact that during that same year it shows that the species was found nearly simultaneously from points widely scattered over the United States.

List of localities from which *Anaphoidea conotracheli* (Girault) has been obtained, as reared from the eggs of the plum curculio (*Conotrachelus nenuphar* Herbst):

Fort Valley, Ga.,

May 10, 11, 31, June 15, 14, 28, 29, 1905.

Arundel, Md.,

May 16, 18, 19, 30, June 6, 10, 2, 14, 13, 1905.

Riverdale, Md.,

May 16, 30, July 15, 19, 24, 1905.

Ardmore, I. T.,

May 16, 1905.

Washington, D. C.,

June 9, 14, 1905.

Alexander, Va.,

June 15, 1905.

Victoria, Texas,

June 15, 1905.

Arlington, Va.,

June 15, 20, July 8, 13, 17, 1905.

Lexington, Va.,

June 18, 1905.

Afton, Va., June 27, 1905.

Berlin, Conn.,

June 13, July 6, 7, 8, 16, 11, 12, 13, 14, 18, 1905.

College Park, Md.,

July 22, 24, 25, 29, 1905.

Falls Church, Va., August 12, 1905.

Myrtle, Ga., April 12, 1906.

3. *Anaphoidea pullicrura*, new species.

Normal position.

Female.—Length, 0.65 mm. Moderately small. Normal.

General color dark to black with some brownish, shining: Flagellum of antennæ concolorous with body, more brownish, clothed with short grayish pubescence, the pedicel and scape lighter, dusky yellowish, slightly darker than the general color of the legs; the lateral neutral dusky, grayish yellowish, uniform in color, distinctly lighter than and contrasting with, the general body coloration, the distal tarsal joints as usual, darker. Eyes dark red. Coxæ more nearly concolorous with the body; trochanters pallid. Fore wings lightly but distinctly fumated, the fumation somewhat deeper proximad and absent in a small more or less rectangular area caudad of the submarginal vein; very much as in the species *sordidata* Girault; posterior wings similarly fumated over their entire surface. Venation of both wings concolorous with the wing surface. Ventum concolorous. Body sculpture consisting of very fine lines, absent on the abdomen; surface of the eyes much coarser than the body sculpture.

Fore wings moderately, closely, uniformly ciliate in the disk as in *sordidata* Girault, the discal cilia moderately long and close but not more than a third as coarse and much shorter than the marginal cilia; discal cilia absent directly distad of the marginal vein for over the latter's length and absent also proximad and caudad of the venation as described for *sordidata*; the single isolated cilium also present. Marginal cilia as in the type species but proximad shortest at the *cephalic* margin. Fore wings narrow, narrower than those of the type species, their greatest width at the distal fifth not being equal to the length of the longest marginal cilia (at the apex of the caudal margin) and bearing at that point but from six to nine rows of discal cilia. Venation and other characters of the wings as in the type species.

Caudal wings also as in the type species of the genus but more slender and somewhat less curved, its marginal cilia relatively the same but shorter and slightly more delicate, differing mostly in the discal ciliation which is approximately the same but the single longitudinal row in the center of the blade is confined to the apical part of the blade and consists of not more than four or five or less than two cilia or setæ extending proximad from the apex a short distance and widely separated in the line from each other; this row appears normally to contain about three cilia; sometimes it is absent.

Legs normal, similar to those of *sordidata* but the proximal tarsal joints

somewhat the longest. Ovipositor not conspicuous. Head, thoracic and abdominal characters similar to those of the type species as far as could be ascertained.

Antennæ somewhat similar to those of the type species in having the conspicuously small first funicle joint, but in this species the third, not the second, funicle joint is the longest antennal joint (excepting the scape) and the funicle joints distad of the first are all somewhat shorter and broader and the funicle itself is distinctly broader distad of its second joint, not the case in the type species, there the broadening of the funicle distad of its second joint being barely noticeable; second funicle joint shortest (excluding club joints and funicle 1), subequal in length to the sixth, whereas in the type species it is distinctly longer. Scape as in *sordidata*, somewhat more slender, longer than the club and longer in proportion to the first and second funicle joints; pedicel the same, subequal in length to funicle joints 2 and 6, about as broad at its apex as most of the funicle joints; first funicle joint same as in the type, about the third the length of the second funicle joint but equal to it in width, not the case in the type species; second funicle joint subequal to but slightly shorter than the pedicel and funicle joint 6; the third funicle joint longest, excepting the scape, distinctly broader than the preceding joint and about a third longer, a fourth longer than the fourth, fifth and sixth funicle joints taken separately, which are subequal but shorten very gradually distad; the club divided at about its middle, obliquely, the proximal joint slightly the shorter, obconic, obliquely truncate at its apex and subequal in length to joint 6 of the funicle, the apical joint conical, slightly longer; club ovate, widest at its middle, not more than a third wider than any of the funicle joints distad of the second and about equal to slightly over a third of the length of the funicle or slightly longer than the combined lengths of joints 5 and 6 of the funicle; its apex obtusely pointed. Apical angles of joints 3-6 of the funicle acute, the club with distinct longitudinal ridges. Pubescence of antennæ somewhat similar to the discal ciliation of the fore wings, moderately close, soft and uniform and similar to that of the type species. The antennæ are like those of *conotracheli*.

From 4 specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Male.—The same as the female with the exception of the secondary sexual characters.

Abdomen in shape usual to the genus. Antennæ filiform, 12-jointed; scape subclavate, about one and a half times longer than the obconical pedicel; flagellar joints gradually shortening distad, the first two subequal in length, each about as long as the scape; third, fourth, fifth and sixth flagellar joints subequal, a fourth shorter; seventh joint slightly shorter; the eighth and ninth joints subequal, slightly shorter; the tenth or club joint slightly shorter than the preceding joint, somewhat conical, twice or more longer than wide, distinctly longer than the pedicel and about two-thirds the length of the proximal funicle joint. Flagellar joints with scattered, irregular, moderate, grayish pubescence and with several longitudinal carinæ. The

antennæ differ from those of the male of *conotracheli* in having more noticeable pubescence, the hairs of the antennæ being minute and inconspicuous in that species, in having the antennal joints somewhat more slender, intermediate in length between *conotracheli* and *sordidada* but more like the former. The male of the last-named species has about the same amount of pubescence on the antennæ as has the male of *pullicrura*.

Habitat.—United States—Centralia and Urbana, Ill.

Type.—Accession No. 41,686, Illinois State Laboratory of Natural History, Urbana, Ill., 1 ♀ in xylol-balsam.

Described from three female specimens mounted in balsam and subsequently cleared in xylol and allowed to dry in order to obtain correct description of the sculpture and other body characters and a fourth specimen of the same sex stupefied with chloroform and studied unmounted before its death. Three of these specimens were captured on August 26 and 30, 1909, on the panes of a small window and the fourth in the same place on September 5, 1909, at Centralia, Ill. Subsequently, I have captured a single female at Urbana, Illinois, June 9, 1910, in a greenhouse and two males in the same locality, July 1, 1910, sweeping and in a greenhouse.

This species is about two-thirds the size of *A. sordidata* but recently described from the same locality but at first glance or casually very similar to it; it is still more like *conotracheli* in antennal structures. However, the narrower wings, the much shorter row of discal cilia of the posterior wings, the lesser number of longitudinal rows of discal cilia in the fore wings, the short second, the longer third funicle joints, the broadening of the antennal funicle distad of the second joint, the darker first funicle joint and lighter more uniformly colored legs are characters which must be depended upon to distinguish it from the type species and which are readily detected upon close study. Its narrower fore wings separate it from *conotracheli*.

Tribe *Mymarini*.

Genus *Polynema* Haliday.

1. *Polynema bifasciatipenne* (Girault).

"*Polynema acanthi* Ashmead," Pierce, 1907, p. 361.

Stichothrix bifasciatipennis Girault, 1908b, pp. 115-117.

Since describing this species I have had access to all of the *Mymaridæ* in the collections of the United States National Museum and find therein four tagmounted sets of it, a study of which con-

vinces me that it belongs to *Polynema* Haliday and not to *Strichothrix* Foerster. The species is a very striking one and should be easily recognized. The specimens referred to were labelled "*Cosmocomma* n. sp." and the sets bore labels as follows: (a) "No. 860 e.—from eggs of *Æ. niveus* in Raspberry (June 3, 1881, 2 ♂'s, 1 ♀); in resin-weed (June 3, 1881, 1 ♂, 1 ♀). From resin-weed (June 7, 1881, 1 ♂, 4 ♀'s; June 10, 1881, 2 ♀'s); proctotrupid from eggs of *Æcanthus niveus*, Fredonia, Kansas, May 31, 1881 (2 ♂'s, 1 ♀)." (b) "331⁰¹.—11-18-88—"; 1 ♀. (c) "College Station, Texas, September. Banks." 1 ♀. (d) "Onaga, Kansas; Crevecoeur." 2 ♀'s.

On account of the fact that the original description of this species was made from but two balsam-mounted female specimens, many of its characters were not given, not being visible. I consider it important therefore with the present opportunity to add the following supplementary descriptive details more for the purpose of adding to a knowledge of the generic characters rather than to those of the species. Also the male is described for the first time.

Normal position.

Female.—Length, 2 mm., more or less; variable.

The general color is rather yellowish-brown, not dark, the antennal club, the five distal funicle joints and the tibiæ dark, the club and funicle joints 5 and 6 the darkest of these; body shining; color of body uniform; eyes with a few short, minute, scattered hairs; genæ with some darker spots.

(Dorsal aspect) face between the eyes concave, margined; vertex rectangular, margined, the "vertexal carina" represented by a narrow margined groove across the cephalic margin of the vertex, fuscous mesially, and along the sides of the vertex near the eyes, also fuscous; on the vertex caudad it is present, crossing the occipital margin and proceeding into the occipital foraminal depression, ventro-mesad and there concolorous. The caudal or occipital margin of the vertex is merely margined, not grooved. The ocelli in the center of the occipital margin of the vertex, the lateral ocelli separated from the cephalic ocellus by the margined occipital margin of the vertex and in the dorso-caudal aspect, that is slightly within the occipital region, the cephalic ocellus in the dorsal aspect; ocelli distant from the round eyes, the lateral ocelli slightly farther from each other than each is distant from the eye margin and slightly farther from the respective eye margins than each is from the cephalic ocellus; antennæ inserted above the middle of the face, widely separated, near the eye margins and about a third the distance up the eye margins.

Pronotum with a narrow median carina, seen in certain lights only; genal sulcus absent. Parapsidal furrows nearly straight, oblique; the meso-scutum with a distinct median carina cephalad, its cephalic margin convexly

rounded, the prothorax conical, long, its lateral dorsal margins carinated, the region nearly as long as the mesoscutum, but remote from the tegulæ, its caudal margin much concaved. Scutellum subquadrate, slightly longer than wide, flat, its sides margined, with *no longitudinal grooved lines*, but transversely near its apex is the usual transverse line of minute punctures, in this species weak and somewhat irregular. Mesopostscutellum transverse, not a sixth the length of the scutellum, its cephalic margin apparently a line of very minute punctures or striations; metathoracic disk, or that portion between the lateral carinæ small, triangular, elevated, with no median carina, the *lateral carinæ* of the metathorax *distinct*, converging, meeting in a point at the apex of the metathorax; laterad of the true lateral carinæ, caudad, not quite in a line longitudinally with the spiracle, is a complete carina or fold, less conspicuous cephalad but proceeding nearly to the spiracle and curving slightly; and still farther laterad, in the center of the dorso-lateral aspect of the metathorax is an oblique (caudo-mesad or cephalo-laterad) carina or fold; metathoracic spiracle minute, circular, not touching the postscutellar folds.

Petiole of abdomen dorsad at base, convex or slightly obtusely barbed, smooth. Abdomen not compressed, (dorsal, lateral aspects) conic-ovate, the petiole not quite half the length of the body of the abdomen, subequal in length to the antennal club and the caudal coxæ, but somewhat longer than either. (Dorsal aspect) segments 2 and 3 of the abdomen subequal, occupying somewhat over half of the surface, each slightly shorter than the petiole; segments 4 to 8 all subequal in length, each not quite half of the length of either segments 2 or 3; caudal margins of the abdominal segments straight; exserted sheaths of the ovipositor not quite half the length of the abdomen (excluding petiole). Body smooth, somewhat shining but the head and the notum of thorax (excepting the metathorax) exhibit a fine polygonal reticulation, somewhat scaly in appearance; abdomen with no perceptible sculpture. In addition to the carinæ on the metathorax there are also two inconspicuous oblique grooves along the dorso-lateral aspect of that segment laterad of the second carina (the one at the spiracle).

Trochanters 2-jointed; tibial spurs single, the cephalic ones forked and curved, the cephalic proximal tarsal joint ventrad with the corresponding strigils. Petiole of abdomen smooth, not sculptured. Along the ventro-lateral aspect of the prothorax is a margined groove extending from the insertion of the cephalic coxa, cephalad to the head; it is broadly convexed and is just ventrad of the deep, conspicuous femoral furrow of the propleurum.

Submarginal vein narrow, straight, the marginal much broader, twice longer than broad but not distinctly long as in *Stichothrix*; in all of the specimens in the National Museum collection the third fuscous band of the fore wing, crossing slightly distad of the widest part of the wing, is rectangular, not narrowing at all caudad, the distal and proximal margins nearly parallel but the distal margin is often broken and irregular; both the second and third fuscous bands or areas may be fainter or absent at the immediate

cephalic or caudal margins of the wings. There are at least two cilia arising from the apex of the marginal vein and one from the apex of the submarginal. Posterior wings with no discal ciliation centrally but a line or two of minute cilia follow the margins on each side.

Funicle of the antennæ thicker after (distad) the third joint, the club the longest joint; joint 6 of the funicle is distinctly longer than the pedicel and funicle joint 4 longer than joint 5 and subequal to joint 1 of the funicle, the joints 4, 5 and 6 of the funicle each shortening. Club and joints 4, 5 and 6 of the funicle more hairy, subhispid, the white setæ close, short and dense on the club.

Mandibles 3-dentate, symmetrical, the dentations subequal but somewhat variable, the middle tooth slightly the largest, all subobtusely conical.

From 16 specimens, $\frac{3}{8}$ -inch objective, 1-inch optic, Bausch and Lomb.

Male.—Length, somewhat shorter in general than the female.

Same in general habitus as the female but with longer, filiform, slender antennæ and shorter, less pointed abdomen. Characteristics the same.

Antennæ 13-jointed, pubescent with short white hairs, most noticeable distad of the first funicle joint, the scape, pedicel and first funicle joint honey yellow, the remaining joints brownish black, becoming gradually darker distad. Scape short, dilated or convex ventrad, compressed, much longer and wider than the pedicel but not as long by about a third as the proximal funicle joint; pedicel smallest, obconic, about a third of the length of the proximal funicle joint and slightly thicker; remaining joints filiform and all subequal, excepting the conic-ovate club joint and the proximal funicle joint; funicle joints 2 to 5 about equal, longest, joint 1 a fourth shorter; joints 6 to 10 of the funicle about equal, slightly shorter than joints 2 to 5, slightly longer than joint 1; club joint slightly shorter, subequal to joint 1 of the funicle. Funicle with the usual longitudinal carinæ.

Abdomen (lateral aspect) fusiform, obtusely convex dorsad, ridged slightly along the meson ventrad; (dorsal aspect) ovate, the second and third segments united covering three-fourths of the surface, each subequal to the other, the fourth segment a fourth the length of the third, the fifth shorter, the sixth apparently minute, barely visible, the seventh and eighth apparently equal or subequal, each slightly shorter than segment 5, the eighth short, conic, with a loose tuft of hairs. Petiole (segment 1) smooth, at least three-fourths the length of the main body of the abdomen or nearly equal in length to the united lengths of segments 2 and 3.

From 7 specimens, $\frac{3}{8}$ inch objective, 1-inch optic, Bausch and Lomb.

In addition to the specimens already named in this connection, I have received for determination from Mr. W. D. Pierce of the National Bureau of Entomology a set of one male and three females all mounted on tags and each bearing the following label: "Clarendon, Texas, 9/19/1905. On *Grindelia squarrosa*. 10/10/05. V. 14 e. Hunter No. 1080. W. D. Pierce collector." Also in the National

Museum collection two tagmounted females labelled respectively: "*Cosmocoma æcanthi* Ashm. Delaware. Amer. Ent. Soc. To be returned" and "Bred from eggs of *Æcanthus* by H. S. Smith. Ex. eggs of *Æcanthus*. Melrose Highlands, Mass."

This species was originally described from specimens reared in the District of Columbia and is now recorded from Kansas, Delaware, Texas and Massachusetts, and thus must be widely distributed in the United States; I have never seen it in Illinois though other members of the genus are common there on windows and in sweepings. More recently I have a specimen from N. Y.

The species was first mentioned in the literature by Pierce (1907) under the name of *Polynema æcanthi* Ashmead, a *nomen nudum*. It was reared by him from the eggs of an *Æcanthus* in the stems of *Grindelia* while studying weevils and their parasites. The specimens just mentioned as having been received from him are undoubtedly the ones referred to in the place cited.

Genus *Stichothrix* Foerster.

1. *Stichothrix bifasciatipennis* Girault.

As has just been shown this species is a *Polynema*.

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THE PERIODICAL CICADA ON LONG ISLAND, N. Y., IN 1910.

BY WILLIAM T. DAVIS,

NEW BRIGHTON, STATEN ISLAND, N. Y.

On the third of July, 1910, I walked in the Half Way Hollow Hills near Wyandanch, Long Island in quest of the seventeen-year cicadas that were reported by Mr. Frederick M. Schott earlier in the season. I found that their presence was well known to the residents of the district and many of the pupa skins were lying on the ground about the edge of a cultivated tract. The cicadas had come up among the young trees of about ten years' growth, which surrounded the field on two sides. Across the road I found the pupa skins very common in a cleared wood-lot, and a great many of them were clinging to the piles of cord wood. There were also many holes in the ground both here and in the locality last mentioned, from which the cicadas had emerged, and I found where they had laid their eggs in white birch, white oak, scarlet oak and *Populus grandidentata*. Though only parts of dead cicadas remained at the time of my visit, yet they had been very numerous, and I was informed that a woman had supposed she heard the whir of a mowing machine in a nearby field, not knowing of the presence of the seventeen-year locusts this year.

The species occurred in great numbers in the same territory in 1906, and Mr. Holmes showed me the dead branches on his apple trees that had died by reason of having so many cicada eggs laid in them during that visitation.